IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln No. : 10/572,660

Applicant(s): Hideo TAKA et al

Filed : December 28, 2006

For : COMPOUND OF MULTI-BRANCHED STRUCTURE, ORGANIC ELECTROLUMINESCENT ELEMENT, DISPLAY, ILLUMINATING DEVICE AND METHOD FOR PRODUCING COMPOUND OF MULTI-BRANCHED STRUCTURE

Art Unit : 1786

Examiner : Marie Rose YAMNITZKY

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DECLARATION UNDER 37 CFR 1.132

COMMISSIONER FOR PATENTS
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S I R :

Hideo TAKA declares as follows:

He is a coinventor of the invention described and claimed in this application.

He received a Doctorate of Science from Tokyo Metropolitan University in 2000. Since 2003, he has been employed by Konica Corporation, now named as Konica Minolta Holdings Inc., the Assignee of the above-referenced application, and he has been

engaged in the research and development in the field of organic light-emitting device.

The following experiment was conducted by Mr. Hideo TAKA, a coinventor of the invention(s) described and claimed in this application.

EXPERIMENTAL

Organic EL elements 1-3B, 1-4B, 1-5B and 1-6B were each prepared in the same manner as preparation of Organic EL elements 1-3, 1-4, 1-5 and 1-6, respectively (specification pages 105 et seq), except that the multi-branched structure compound (A) and the Ir phosphorescent compound (B) were not prepared and isolated in advance. Instead, in each of Organic EL elements 1-3B, 1-4B, 1-5B and 1-6B, the multi-branched structure compound (A) and the Ir phosphorescent compound (B) were both added by dissolving in dichlorobenzene, the amount of (A) and (B) were the same as used in Organic EL elements 1-3, 1-4, 1-5 and 1-6, respectively.

The light emitting layer of Organic EL elements 1-3B, 1-4B, 1-5B and 1-6B are shown in the following Table 2B.

Table 2B

Organic EL Element	Light Emitting Layer	Remarks
1-3	PVK/PD-4 (Encapsulating PL-14)	Inventive
1-4	PVK/PD-5 (Encapsulating PL-14)	Inventive
1-5	PVK/PD-6 (Encapsulating PL-14)	Inventive
1-6	PVK/PD-7 (Encapsulating PL-14)	Inventive
1-3B	PVK/ A* /PL-14 (Not encapsulated)	Comparative
1-4B	PVK/ B* /PL-14 (Not encapsulated)	Comparative
1-5B	PVK/ C* /PL-14 (Not encapsulated)	Comparative
1-6B	PVK/ D* /PL-14 (Not encapsulated)	Comparative

A*: Precursor of PD-4 without encapsulating PL-14

B*: Precursor of PD-5 without encapsulating PL-14

C*: Precursor of PD-6 without encapsulating PL-14

D*: Precursor of PD-7 without encapsulating PL-14

RESULTS

The results of evaluating the EL Elements are shown in Table 3B

Table 3B

Organic EL Element	External Quantum Yield (Relative Value)	Emission Life (Relative Value)	Remarks
1-1	100	100	Comparative
1-3	215	635	Inventive
1-4	143	600	Inventive
1-5	161	540	Inventive
1-6	189	781	Inventive
1-3B	105	110	Comparative
1-4B	97	89	Comparative
1-5B	101	105	Comparative
1-6B	98	105	Comparative

The evaluation results shown in Table 3B demonstrate that when the multi-branched structure compound (A) encapsulates the Ir phosphorescent compound (B) in advance, the evaluation results were far superior to the corresponding organic EL sample which contains the multi-branched structure compound (A) and the Ir phosphorescent compound (B) without isolating. The superior results of the present invention are unexpected.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C.§ 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: September 13, 2011

Hideo Taka

Hideo TAKA